

CLAIMS

1. An ocular lens material comprising at least one kind of a compound (A) having an ethylenically unsaturated group and
5 polydimethylsiloxane structure through a urethane bond and at least one kind of a pyrrolidone derivative (B) in which a polymerizable group is a methylene group.

2. An ocular lens material according to Claim 1, comprising
10 5 to 60 % by weight of the pyrrolidone derivatives in which the polymerizable group is a methylene group.

3. An ocular lens material according to Claim 1 or 2,
wherein the pyrrolidone derivatives in which the polymerizable group is
15 a methylene group is 1-alkyl-3-methylene-2-pyrrolidone.

4. An ocular lens material according to Claim 3, wherein the
1-alkyl-3-methylene-2-pyrrolidone (B) is 1-methyl-3-methylene-2-
pyrrolidone.

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5. An ocular lens material according to Claim 1 or 2,
wherein at least one of the pyrrolidone derivatives in which the
polymerizable group is a methylene group is 1-alkyl-5-methylene-2-
pyrrolidone.

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6. An ocular lens material according to Claim 5, wherein the
1-alkyl-5-methylene-2-pyrrolidone (B) is 1-methyl-5-methylene-2-

pyrrolidone.

7. An ocular lens material according to Claim 1 or 2,
wherein at least one of the pyrrolidone derivatives in which the
5 polymerizable group is a methylene group is 5-alkyl-3-methylene-2-
pyrrolidone.

8. An ocular lens material according to Claim 7, wherein the
5-alkyl-3-methylene-2-pyrrolidone (B) is 5-methyl-3-methylene-2-
10 pyrrolidone.

9. An ocular lens material according to Claim 1, wherein the
repeating number of siloxane of the polydimethylsiloxane structure in a
compound (A) having ethylenically unsaturated groups and
15 polydimethylsiloxane structure through a urethane bond is 10 to 100.

10. An ocular lens material according to Claim 1, 2, 3, 4, 5,
6, 7, 8 or 9, wherein tensile modulus is 0.2 to 0.8 MPa and stress
relaxation under loading a fixed load for 30 seconds is 8 to 15 %.
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11. An ocular lens material according to Claim 1, 2, 3, 4, 5,
6, 7, 8 or 9, wherein water content is 10 to 60 % by weight.

12. An ocular lens material according to Claim 1, 2, 3, 4, 5,
25 6, 7, 8 or 9, wherein water content is 32 to 55 % by weight.

13. An ocular lens material according to Claim 1, wherein

(C) a silicone compound other than the compound (A) having ethylenically unsaturated groups and polydimethylsiloxane structure through a urethane bond is contained.

5 14. An ocular lens material according to Claim 13, wherein the silicone compound (C) is tris(trimethylsiloxy)silylpropyl (meth)acrylate.

15 15. An ocular lens material according to Claim 1 or 13, wherein a N-substituted acrylamide (D) is further comprised.

15 16. An ocular lens material according to Claim 15, wherein the N-substituted acrylamide (D) is at least one of N-substituted acrylamides selected from the group consisting of N,N-dimethyl acrylamide, N,N-diethyl acrylamide, acryloyl morpholine, N-isopropyl acrylamide and N-(2-hydroxyethyl) acrylamide.

20 17. An ocular lens material according to Claim 1, 13 or 15, wherein at least one of a crosslinking agent is further comprised.

 18. A lens for the eyes comprising the ocular lens material according to 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17.

25 19. A method for preparing an ocular lens material, comprising

 a) a step of obtaining a mixed solution comprising at least one kind of a compound (A) having ethylenically unsaturated groups and

polydimethylsiloxane structures through a urethane bond and a hydrophilic monomer (B) comprising at least one kind of a pyrrolidone derivative in which a polymerizable group is a methylene group and an photo polymerization initiator and/or a thermal polymerization initiator,

- 5 b) a step of introducing said mixed solution to a mold ,
- c) a step of obtaining an ocular lens material cured by irradiating UV light on and/or heating the mixed solution in said mold,
- d) a step of carrying out surface treatment to said ocular lens material after demolding said ocular lens material to impart
- 10 hydrophilicity and deposit resistance,
- e) a step of removing an unreacted component from said ocular lens material, and
- f) a step of hydrating said ocular lens material.

15 20. A method for preparing the ocular lens material according to Claim 19, comprising at least one of the compounds (A) having ethylenically unsaturated groups and polydimethylsiloxane structures through a urethane bond, at least one of the pyrrolidone derivatives (B) in which the polymerizable group is a methylene group,

20 the silicone compound (C) and the N-substituted acrylamide (D) in the mixed solution.

 21. A method for preparing the ocular lens material according to Claim 19 or 20, containing a crosslinking agent in the

25 mixed solution.

 22. A method for preparing the ocular lens material

according to Claim 19, 20 or 21, containing at least one of polymerizable or non polymerizable ultraviolet absorbents and/or at least one of polymerizable or non polymerizable dyes in the mixed solution.

5 23. A method for preparing the ocular lens material according to Claim 19, 20, 21 or 22, comprising 0.1 to 5 % by weight of a water-soluble organic solvent.

10 24. A method for preparing the ocular lens material according to Claim 23, wherein the water-soluble organic solvent is a water-soluble organic solvent selected from alcohols having 1 to 4 carbons, acetone, methyl ethyl ketone, dimethylformamide, dimethylsulfoxide, acetonitrile and N-methyl-2-pyrrolidone.

15 25. A method for preparing the ocular lens material according to Claim 19, wherein the surface treatment is plasma treatment.

20 26. A method for preparing the ocular lens material according to Claim 25, wherein oxygen or a mixture of oxygen is used in the plasma treatment.

25 27. A method for preparing the ocular lens material according to Claim 26, wherein a mixture of oxygen and water is used in the plasma treatment.

28. A method for preparing the ocular lens material

according to Claim 26, wherein a mixture of oxygen and tetrafluoromethane is used in the plasma treatment.

29. A method for preparing the ocular lens material
5 according to Claim 26, wherein a mixture of oxygen and organic silane is used in the plasma treatment.

30. A method for preparing the ocular lens material
according to Claim 29, wherein the organic silane is tetramethoxysilane.
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31. A method for preparing the ocular lens material
according to Claim 26, wherein a mixture of oxygen and methane is used
in the plasma treatment.

15 32. A method for preparing the ocular lens material
according to Claim 26, wherein a mixture of oxygen, nitrogen and
methane is used in the plasma treatment.

33. A method for preparing the ocular lens material
20 according to Claim 19, wherein the surface treatment is a treatment
according to the coating method of a hydrophilic polymer coating.

34. A method for preparing the ocular lens material
according to Claim 33, wherein the coating method is a plasma
25 polymerization method of a hydrophilic monomer.

35. A method for preparing the ocular lens material

according to Claim 33, wherein the coating method is a plasma-induced graft polymerization.

36. A method for preparing the ocular lens material
5 according to Claim 19, further comprising (g) a step of coloring the ocular lens material by using a vat dye.